

to map the user code bit inputs to validation outputs. These rules may be developed as if-then statements [[61]].--

~~Please amend paragraph [0014] as follows:--~~

--[[The]] [[f]]Fuzzy logic detection sub-system 61 in [[the]] battery-powered headphone receiver 50 utilizes the if-then fuzzy set to map the received user code bits into two values[[;]]: a low (0 or -1) and a high (1). Thus, as the user code bits are received, the "if" rules map the signal bit energy to the fuzzy set low value to some degree and to the fuzzy set high value to some degree. ~~See Figure 4 schematic block 61.~~ Figure 4 ~~schematic block 61~~ graphically shows that x-value -1 equals the maximum low bit energy representation and x-value 1 equals the maximum high bit energy representation. Due to additive noise, the user code bit energy may have some membership to low and high as represented in [[61]] [[of]] Figure 4. The if-part fuzzy set may determine if each bit in the user code, for every received packet, has a greater membership to a high bit representation or a low bit representation. The more a user code bit energy fits into the high or low representation, the closer its subethood, i.e., a measure of the membership degree to which a set may be a subset of another set, may be to one.--

~~Please amend paragraph [0015] as follows:--~~

--The if-then rule parts that make up the fuzzy logic detection sub-system 61 must be followed by a defuzzifying operation. This operation reduces the aforementioned fuzzy set to a bit energy representation (i.e., -1 or 1) that is received by the transmitted

packet. ~~[[The]]~~ ~~[[i]]~~ Fuzzy logic detection sub-system 61 may be used in ~~[[the]]~~ battery-powered head~~[[set]]~~ phone receiver 50 to enhance overall system ~~[[10]]~~ performance.--

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^{added}
~~Please amend paragraph [0016] as follows: (from tiff 81)~~

--~~The channel decoder 66 may be a Viterbi decoder. A channel decoder 66 may be in communication with the bandpass filter. A decoder 68 may be in communication with a digital to analog converter or DAC 70 that may convert the digital signal back to an analog audio music signal. The next step may process the digital signal to return the signal to analog or base band format for use in powering speaker(s) 75. A digital-to-analog converter 70 (DAC) may be used to transform the digital signal to an analog audio signal. An analog low pass filter 72 may be used to filter the analog audio music signal to pass a signal in the approximate 20 Hz to 20 kHz frequency range and filter other frequencies. The analog audio music signal may then be processed by a power amplifier 74 that may be optimized [[to]] for powering headphone speakers 75[[4]] to optimize provide a high quality, low distortion audio music signal for hearing audible enjoyment by a user wearing [[the]] headphones 55. A person skilled in the art would appreciate that some of the embodiments described hereinabove are merely illustrative of the general principles of the present invention. Other modifications or variations may be employed that are within the scope of the invention. Thus, by way of example, but not of limitation, alternative configurations may be utilized in accordance with the teachings herein. Accordingly, the drawings and description are illustrative and not meant to be a limitation thereof.--~~

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~~Please amend paragraph [0017] as follows.~~

~~--While the invention has been particularly shown and described with respect to the illustrated and preferred embodiments thereof, it will be understood by those skilled in the art that the foregoing and other changes in form and details may be made therein without departing from the spirit and scope of the invention. Moreover, all terms should be interpreted in the broadest possible manner consistent with the context. In particular, the terms "comprises" and "comprising" should be interpreted as referring to elements, components, or steps in a non-exclusive manner, indicating that the referenced elements, components, or steps may be present, or utilized, or combined with other elements, components, or steps that are not expressly referenced. Thus, it is intended that the invention cover all embodiments and variations thereof as long as such embodiments and variations come within the scope of the appended claims and their equivalents.--~~

~~Please amend paragraph [0018] as follows.~~

~~--[0017] The A wireless digital audio music system includes a portable audio source with a digital audio transmitter operatively coupled thereto and an audio receiver operatively coupled to a headphone set. The audio receiver is configured for digital wireless communication with the audio transmitter. The digital audio receiver utilizes fuzzy logic to optimize digital signal processing. Each of the digital audio transmitter and receiver is configured for code division multiple access (CDMA) communication. may utilize a battery powered transmitter to transmit a coded digital signal from an existing analog headphone jack of a music audio player device or source to a battery powered headphone receiver without the use of wires. A battery powered digital transmitter may~~

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~~Please amend paragraph [0017] as follows.~~

--A wireless digital audio system includes a portable audio source with a digital audio transmitter operatively coupled thereto and an audio receiver operatively coupled to a headphone set. The audio receiver is configured for digital wireless communication with the audio transmitter. The digital audio receiver utilizes fuzzy logic to optimize digital signal processing. Each of the digital audio transmitter and receiver is configured for code division multiple access (CDMA) communication. The wireless digital audio system allows private audio enjoyment without interference from other users ~~or other wireless devices~~ of independent wireless digital transmitters and receivers sharing the same space. ~~And without the inconvenience of wires.~~--